What is claimed is:

1. A storage allocation method for allocating a vacant storage region to a virtual volume from storage regions of at least one of storage devices when storage regions maintained by the storage devices are provided as virtualized volumes to a host computer, said method comprising:

a first step of allocating a storage region for a required size from said vacant storage region until an unallocated remaining size in the required size becomes smaller than a specified maximum region size; and

a second step of, when said remaining size becomes smaller than said maximum region size, acquiring a storage region, whose size is the smallest power of two not smaller than said remaining size, from said vacant storage region for allocation.

2. A storage allocation method according to claim 1, further comprising a third step of, if said vacant storage region includes a plurality of continuous vacant regions, selecting the largest continuous vacant region for allocation.

3. A storage allocation method according to claim 1, further comprising a third step of, if said vacant storage region adjoins an allocated storage region on each side thereof, acquiring for allocation a storage region adjoining

the allocated storage region which is less likely to be released.

4. A storage allocation method according to claim 1, further comprising a third step of, if the vacant storage regions are sorted into a plurality of groups allowing load dispersion among the groups and it is requested to divide the virtual volume into a plurality of divisions allowing load dispersion among the divisions, dividing the required size according to the specified number of divisions and assigning the divided sizes respectively to the groups for allocation.

5. A storage allocation method according to claim 4 wherein said third step, if the number of said groups is larger than said number of divisions, selects as many groups as the divisions in the decreasing order of the total vacant capacity, divides the required size and assigns the divided sizes respectively to the selected groups for allocation.

6. A storage allocation method according to claim 1 wherein the first step allocates the largest region, whose size is integer times said maximum region size not exceeding said required size, from said vacant storage region.

7. A storage allocation method according to claim 1 wherein the first step allocates the largest region, whose size is a power of two not exceeding said required size, from said vacant storage region.

8. A virtualization device which provides storage

regions maintained by at least one storage device to a host computer as virtualized volumes, said virtualization device comprising:

access translation table means for storing information on associativity between an address of each storage region on a virtual volume and the addresses of a corresponding logical unit in the storage device and a corresponding storage region in said logical unit;

means for translating an input/output request for said virtual volume into an input/output request for the storage region of said storage device with reference to said access translation table means;

means for accepting a request to allocate a vacant storage region to said virtual volume from storage regions of said storage device;

means for allocating a storage region for a required size from said vacant storage region until an unallocated remaining size in the required size becomes smaller than a specified maximum region size;

means for acquiring a storage region, whose size is the smallest power of two not smaller than said remaining size, from said vacant storage region for allocation when said remaining size becomes smaller than said maximum region size; and

means for, after storage allocation is complete for

the allocation request, updating a content of said access translation table means based on the allocation result.

9. A virtualization device according to claim 8, further comprising means for, if said vacant storage region includes a plurality of continuous vacant regions, selecting the largest continuous vacant region for allocation.

10. A virtualization device according to claim 8, further comprising means for, if said vacant storage region adjoins an allocated storage region on each side thereof, acquiring for allocation a storage region adjoining the allocated storage region which is less likely to be released.

11. A virtualization device according to claim 8, further comprising means for dividing the required size according to the specified number of divisions and assigning the divided sizes respectively to the groups for allocation if the vacant storage regions are sorted into a plurality of groups allowing load dispersion among the groups and it is requested to divide the virtual volume into a plurality of divisions allowing load dispersion among the divisions.

12. A virtualization device according to claim 11, further comprising means for, if the number of said groups is larger than said number of divisions, selecting as many groups as the divisions in the decreasing order of the total vacant capacity, dividing the required size and assigning the divided sizes respectively to the selected groups for

allocation.

13. A storage device incorporating the virtualization device according to claim 8.

14. A program for allowing a computer to implement a capability of providing storage regions maintained by storage devices as virtualized volumes to the computer and a capability of allocating a vacant storage region to a virtual volume from storage regions of at least one storage device, said capability of allocating vacant storage comprising the functions of:

allocating a storage region for a required size from said vacant storage region until an unallocated remaining size in the required size becomes smaller than a specified maximum region size; and

when said remaining size becomes smaller than said maximum region size, acquiring a storage region, whose size is the smallest power of two not smaller than said remaining size, from said vacant storage region for allocation.

15. A program according to claim 14, further allowing the computer to, if said vacant storage region includes a plurality of continuous vacant regions, select the largest continuous vacant region for allocation.

16. A program according to claim 14, further allowing the computer to, if said vacant storage region adjoins an allocated storage region on each side thereof, acquire for

allocation a storage region adjoining the allocated storage region which is less likely to be released.

17. A program according to claim 14, further allowing the computer to, if the vacant storage regions are sorted into a plurality of groups allowing load dispersion among the groups and it is requested to divide the virtual volume into a plurality of divisions allowing load dispersion among the divisions, divide the required size according to the specified number of divisions and assign the divided sizes respectively to the groups for allocation.

18. A program according to claim 17, allowing the computer to, if the number of said groups is larger than said number of divisions, select as many groups as the divisions in the decreasing order of the total vacant capacity, divide the required size and assign the divided sizes respectively to the selected groups for allocation.

19. A system comprising:

at least one storage device maintaining a real storage region;

at least one host processor which initiates data read and write from and to said real storage region of said storage device;

a virtualization device which interferes between said host processor and said storage device and provides virtual volumes to said host processor; and

a management console which issues a request said virtualization device to allocate a storage region for a virtual volume;

wherein said virtualization device comprises:

access translation table means for storing information on associativity between an address of each storage region on the virtual volume and the addresses of a corresponding logical unit in the storage device and a corresponding storage region in said logical unit;

means for translating an input/output request for said virtual volume into an input/output request for the storage region of said storage device with reference to said access translation table means;

means for accepting from said management console a request to allocate a vacant storage region to said virtual volume from storage regions of said storage device;

means for allocating a storage region for a required size from said vacant storage region until an unallocated remaining size in the required size becomes smaller than a specified maximum region size;

means for acquiring a storage region, whose size is the smallest power of two not smaller than said remaining size, from said vacant storage region for allocation when said remaining size becomes smaller than said maximum region size; and

means for updating a content of said access translation table means based on the allocation result after storage allocation is complete for the allocation request.